

IN THE CLAIMS:

Amend the claims as follows:

1. (Currently Amended) A semiconductor device, comprising:

a semiconductor substrate having a first surface and a second surface opposite the first surface, and having a piercing hole piercing there-through from the first surface to the second surface;

an insulating film formed on the first surface of the semiconductor substrate having the piercing hole extended there-through; and

a piercing electrode formed in the piercing hole and extending from the insulating film to the second surface,

wherein the piercing hole is formed by using the insulating film as an etching mask;

the piercing hole has a first diameter in the insulating film and a second diameter in the semiconductor substrate which is wider than the first diameter;

the piercing electrode has a substantially same diameter as the first diameter along a whole length thereof; and

an insulating film sleeve lies only between the piercing electrode and an inside wall of the piercing hole in the semiconductor substrate.

2. (Original) The semiconductor device as claimed in claim 1, wherein the insulating film sleeve is made of an organosiloxane group material, a siloxane hydroxide group material, an organic polymer, or a porous material of the organosiloxane group material, the siloxane hydroxide group material, or the organic polymer.

3. (Original) The semiconductor device as claimed in claim 1, wherein the insulating film sleeve has a relative permeability of approximately 3.0 and under.

4. (Original) The semiconductor device as claimed in claim 1, wherein the piercing electrode is made of a metal whose main component is a copper.

5. (Currently Amended) A semiconductor integrated circuit device, comprising:
a support substrate; and
a plurality of semiconductor chips stacked on the support substrate;
the semiconductor chip including
a semiconductor substrate;
a semiconductor element formed on a first surface of the semiconductor chip;
an insulating film formed on the first surface of the semiconductor chip as covering the semiconductor element;
a multi-layer interconnection structure formed on the insulating film;

a piercing hole formed in the semiconductor chip as piercing from the first surface into the insulating film through a second surface facing to the first surface; and

a piercing electrode formed in the piercing hole and extending from the first surface to the second surface;

wherein the piercing hole is formed by using the insulating film as an etching mask;

the piercing hole has a first diameter in the insulating film and a second diameter in the semiconductor chip which is bigger than the first diameter;

the piercing electrode has a substantially same diameter as the first diameter along whole length; and

an insulating film sleeve lies only between the piercing electrode and an inside wall of the piercing hole in the semiconductor substrate.

6. (Original) The semiconductor integrated circuit device as claimed in claim 5, wherein the insulating film sleeve is made of an organosiloxane group material, a siloxane hydroxide group material, an organic polymer, or a porous material of the organosiloxane group material, the siloxane hydroxide group material, or the organic polymer.

7. (Original) The semiconductor integrated circuit device as claimed in claim 5, wherein the insulating film sleeve has a relative permeability of approximately 3.0 and under.

8. (Original) The semiconductor integrated circuit device as claimed in claim 5, wherein the piercing electrode is made of a metal whose main component is a copper.

9-15. (Withdrawn)